Enclosure 2:
Responsiveness Summary
EPA Decision Concerning Arizona's 2004 CWA Section 303(d) List

Introduction

EPA partially approved and partially disapproved Arizona's Section 303(d) list on November 16, 2004. EPA published a public notice of availability of its listing decision in the Federal Register on November 26, 2004 (69 FR 68902-3). EPA invited public comment on its decisions to disapprove Arizona's decisions not to list certain waters and pollutants and identify these waters and pollutants for inclusion on Arizona's list. EPA did not invite comment on its decisions to approve the State's decision to list waters and pollutants identified in the State listing submittal. On November 26, EPA sent notices of availability to several dozen individuals and organizations listed on a TMDL program e-mail distribution list provided by the State. EPA also posted the notice of availability and decision documents on its Region IX web site. Decision documents were also available upon request to staff at Region IX.

EPA received comments from five parties in response to the public notice. This responsiveness summary contains summaries of comments received and EPA's responses to these comments. Written comments were received from the following parties:

- Arizona Department of Environmental Quality
- Arizona Chamber of Commerce
- Phelps Dodge Corporation
- Sierra Club, Grand Canyon Chapter
- City of Phoenix, Office of the City Attorney

After carefully considering these comments, EPA has reached a final decision to identify for inclusion on Arizona's 303(d) list all of the waters initially identified in EPA's November 16 decision, except Butte Creek and a segment of Boulder Creek from Butte to Copper Creek near Baghdad, AZ. EPA is not including Butte Creek and the segment of Boulder Creek on the final AZ 2004 303(d) list because our review of the most recently available monitoring results indicates water quality standards were not violated in these segments. EPA is setting a low priority ranking for the mercury listings in Boulder Creek (unnamed tributary to Wilder Creek), Boulder Creek (Wilder Creek to Butte Creek), and Burro Creek to reflect our understanding of the State's current monitoring and TMDL development priorities.

Comments by ADEQ and Responses

1. **ADEQ agrees with EPA that fish consumption advisories indicate impairment as narrative standards are not being attained. However, State statute requires adoption of narrative implementation procedures prior to applying narrative standards for 303(d) listing.**
   Response: EPA appreciates that ADEQ recognizes fish advisories are a valid indicator of narrative standards non-attainment. EPA looks forward to the State's completion of

narrative standards implementation procedures, preferably before next listing cycle in 2006.

2. **Narrative standards implementation procedures are not yet complete; this precludes ADEQ from listing waters for narrative standards exceedences until implementation procedures are complete.**

    a. **Nutrients in Lakeside Lake**

    Response: EPA appreciates that ADEQ listed this water body for numeric exceedences of dissolved oxygen and ammonia; however, EPA added nitrogen, phosphorus and chlorophyll-a because there also was sufficient evidence of impairment for those pollutants. Federal regulations do not authorize States to decline to apply narrative standards in the 303(d) process until narrative standards implementation procedures have been implemented.

    b. **Turbidity and/or bottom deposits for the Little Colorado, Gila and San Francisco Rivers**

    Response: ADEQ indicates that it has been studying correlations of suspended sediment, turbidity and excessive sediment deposition; however, the state believes that the data merit more study before listings are made. Also the State will consider modifications to its suspended sediment concentration (SSC) standard during the triennial review of water quality standards. EPA appreciates the comment, although as note above, adoption of implementation procedures is not a precondition for the application of a water quality standard in the 303(d) listing process.

3. **Exceedences of numeric water quality standards warrants listing impaired waters:**

    a. **ADEQ concluded impairment due to exceedences of chronic aquatic and wildlife standards for four stream reaches in Boulder Creek area; however these waters were not included on the State's 303(d) submittal to EPA because they were under appeal.**

    Response: Thank you for the comment.

    b. **ADEQ agrees that Brewery Gulch is impaired based on more than one exceedence of a chronic aquatic and wildlife standard, although ADEQ did not place it on the list because it will be addressed as part of the Mule Gulch TMDLs.**

    Response: Thank you for the comment. We concur that it is reasonable to address Brewery Gulch as part of the Mule Gulch TMDLs.

    c. **State assessment procedures would not provide for listing Bear Canyon Lake, Granite Creek and Rose Canyon Lake because minimum sample size requirements have not been met.**

    Response: EPA concludes that it was inconsistent with federal listing requirements for the State to dismiss a water body from further consideration in the Section 303(d) listing process simply because a minimum sample size threshold was not met for a particular water body. The primary consideration in EPA's decision to list these three

Arizona waters for conventional pollutants was that for each of these waters, a very high percentage of available samples did not meet the applicable numeric water quality standard for the pollutant in question. The available data for the waters added by EPA indicate that the waters exceeded applicable water quality standards in 71-100% of the available samples. The water quality standards for these pollutants applied in the listing analysis do not specify an allowable exceedence rate. Instead, the State standards indicate that these standards "are not to be exceeded." The applicable standards provide no basis for applying an assessment method which requires a minimum sample size before concluding that these standards are violated. Therefore, EPA concludes that these waters exceed the applicable water quality standards and must be listed.

d. ADEQ recognizes the value of the weight of evidence approach in assessing water quality; however, ADEQ stands by its assessment for Watson Lake for nutrients as inconclusive. ADEQ believes that listings are made on a pollutant by pollutant basis, that only one or two exceedences occurred for each parameter, and that minimum sample sizes must be recognized for each parameter.

Response: EPA's conclusions were based on the sum of the evidence related to nutrient effects in Watson Lake. Information for each nutrient-related parameter was included in the whole assessment. A fish kill was observed in this lake concurrent with an exceedence of the numeric nitrogen standard. Numeric exceedences for nitrogen and other pollutants occurred at other times. The available data and information, when viewed together, provide sufficient evidence of impairment.

e. Based on more recent data ADEQ supports the assessment that two adjacent reaches of Tonto Creek are impaired due to exceedences of annual mean levels of nitrogen.

Response: EPA appreciates the comment.

f. For dissolved oxygen, ADEQ maintains that its application of the binomial approach for the large sample set for Tonto Creek is valid. The State's assessment yields that it is "inconclusive" and it should be placed on the State's Planning list, warranting further investigation.

Response: Since the development of the State's Impaired Waters Identification Rule (IWIR), EPA has expressed concern with ADEQ's application of the binomial approach for assessing data sets in comparison to the state's water quality standards that do not explicitly state an acceptable exceedence percentage in agreement with the binomial parameters; e.g., 10% allowable exceedence with 90% confidence. In this one segment of Tonto Creek, the dissolved oxygen standard was exceeded in 12% of the data set which is sufficient for determining impairment according to federal assessment guidance (EPA 1997 and 2003). Applicable Arizona water quality standards do not specify an allowable 10% exceedence rate. Rather, the standards provide that the dissolved oxygen standard is not to be exceeded (i.e., shall not fall below) and that a surface water is in attainment with the water quality standard for

dissolved oxygen if the percent saturation is equal to or greater than 90%. See A.A.C. R18-11-109.

4. **ADEQ has begun the process of revising the state's Impaired Waters Identification Rule (IWIR) and associated 303(d) listing methods.**
   Response: EPA has participated in meetings regarding the revision of IWIR and associated 303(d) listing methods. We look forward to modifications that will make the rule fully consistent with federal listing requirements and guidance.

Comments by Chamber(s) of Commerce and Responses

5. **EPA should not use the listing process to circumvent Arizona law or surface water quality standards (WQS) by relying on subjective interpretations of narrative WQS where:**
   a. **No determination has been made regarding the inadequacy of the State's EPA-approved numeric water quality standards.**

   Response: EPA did not circumvent Arizona law, applicable water quality standards, or federal listing requirements in its review of Arizona's 2004 Section 303(d) list. Numeric standards complement but do not substitute for narrative water quality standards and other elements of the applicable standards. Determining that a numeric water quality standard is inadequate is not a prerequisite for applying a narrative water quality standard when EPA determines if a water body is to be listed.

   Consistent with applicable federal regulations governing review of state Section 303(d) list submittals, EPA reviewed Arizona's listing decisions to ensure that the State identified all waters on the Section 303(d) list that violate any aspect of the applicable water quality standards after implementation of required technology based controls. Federal regulations require that for the purposes of listing waters, the terms "water quality standard applicable to such waters" and "applicable water quality standards" refer to those water quality standards established under Section 303 of the Act, including numeric criteria, narrative criteria, water body uses, and anti-degradation requirements. See, 40 CFR 130.7(b)(3).

   EPA's approval of numeric water quality criteria for a pollutant does not mean that narrative water quality criteria are no longer applicable to waters in which that pollutant is present. When EPA approves State-adopted water quality standards that include a numeric criterion, EPA's review involves a determination of whether the combination of beneficial use designations, numeric criteria, narrative criteria, and anti-degradation protect the uses of the State's waters. See, 40 CFR 131.5 and 131.6. Although numeric water quality standards are an essential element of the NPDES program, there is no EPA rule, and we are aware of no EPA guidance, stating that the adoption of a numeric criterion automatically replaces or supersedes other aspects of a state's standards.

Furthermore in EPA's Notice of Final Rule, 54 Fed. Reg. 23868, 23875, 23876, 23882 (June 2, 1989): "State narrative water quality criteria must be attained and maintained in the same way as all water quality criteria. Narrative water quality criteria have the same force of law as other water quality criteria..."; "Narrative water quality criteria apply to all designated uses at all flows unless specified otherwise in a state's water quality standards."; and, with respect to narrative criteria's continuing force after numeric criteria are adopted, "EPA reiterates that section 301(b)(1)(C) requires that NPDES permits contain effluent limits that achieve narrative water quality criteria. This obligation applies regardless of whether or not a state has adopted a numeric water quality criterion for a pollutant of concern." (emphasis added).

b. The implementation procedures have not been developed to identify the basis for determining that a narrative standard violation actually exists.

Response: Federal regulations do not authorize States to decline to apply narrative standards in the 303(d) process until implementation procedures for narrative standards have been developed or adopted. As described above, federal regulations require that for the purposes of listing waters, the terms "water quality standard applicable to such waters" and "applicable water quality standards" refer to those water quality standards established under Section 303 of the Act, including numeric criteria, narrative criteria, water body uses, and anti-degradation requirements. See, 40 CFR 130.7(b)(3).

c. EPA's proposal to list waters based on narrative standard violations is arbitrary because it may ultimately be determined to be inconsistent with the state's implementation procedures for such standards. (See A.R.S. § 49-232 (F).

Response: EPA understands A.R.S. § 49-232(F) to provide that, under circumstances specified in those sections, various conditions must be met before *ADEQ* can list a water body as impaired. The Arizona statute does not establish conditions which EPA must satisfy when it implements its responsibilities under CWA Section 303(d) or 40 CFR 130.7.

If the State later adopts water quality standards implementation procedures that are approved by EPA, and currently listed waters are found to attain standards following application of the new implementation procedures, the State will be able to remove those waters from a subsequent Section 303(d) list.

6. EPA inappropriately listed waters due to exceedences of chronic numeric standards; both EPA and ADEQ should use requirements outlined in A.A.C. R18-11-120(C) when assessing compliance with chronic aquatic and wildlife criteria.

Response: EPA disagrees that the provisions of A.A.C. R18-11-120(C) apply for purposes of Section 303(d) listing because:

1. Federal listing guidance recommends the listing of waters in cases where more than one exceedence (based on grab or composite samples) occurs in any 3-

year period, consistent with the technical basis for the toxic pollutant water quality standards at issue,

2. EPA concludes, based on its review of Arizona water quality standards, that the standards do not indicate that A.A.C. R18-11-120(C) should apply for Section 303(d) listing purposes,
3. The State has indicated that A.A.C. R18-11-120(C) does not to apply for Section 303(d) listing purposes, and
4. The State's adopted assessment procedures indicate that in cases where more than one independent exceedence of chronic toxic water quality standards occurs during the assessment period, the applicable WQS has been violated. See, A.A.C. R18-11-605(D)(2)(b).

EPA's assessment guidelines specifically recommend that waters should be listed in cases where more than one exceedence occurs within three years on average (EPA, 1997 and 2002). These guidance documents specifically recommend that grab samples be used to assess compliance with chronic toxic pollutant criteria in cases where 4-day data sets are unavailable. While these guidance documents recommend that chronic standards should be applied as 4-day averages, they do not state that chronic standards may only be applied if four consecutive day data sets are available to support their application. Furthermore, no evidence has been provided by the commenter demonstrating that use of grab samples to assess compliance with chronic standards yields inaccurate assessments, (i.e., waters that exceed the chronic standard on one day based on a single grab sample generally attain the standard when the same waters are evaluated based on four consecutive day data.)

EPA carefully reviewed Arizona's water quality standards and concludes that A.A.C. R18-11-120(C) addresses a different purpose of water quality standards than the in-stream attainment assessment performed to develop the Section 303(d) list. Section A.A.C. R18-11-120(C) is entitled "Enforcement" and clearly refers to provisions for carrying out enforcement actions against individual(s) who cause violations of water quality standards. This section gives no indications that its provisions are to apply for any other purpose (e.g., assessment of water quality standards attainment in water bodies). The Section 303(d) listing process is an assessment of whether water bodies attain applicable water quality standards; it is not an assessment of whether an enforcement or compliance action may be taken against a person/parties who cause(s) a violation of a water quality standard.

Moreover, the State agrees with EPA's interpretation that A.A.C. R18-11-120(C) does not apply for the purpose of identifying impaired waters. The State's IWIR describes procedures to be used for assessing water quality condition in comparison to numeric water quality standards. The State's water quality standards regulations clearly outline separate sections to address different purposes of these standards. As explained in its response to a similar comment on the State's proposed 303(d) listing decision, the State interprets the referenced section 120(C) to apply only to the enforcement process, and not for purposes of conducting Section 303(d) listing assessments. Enforcement decision rules are different from assessment criteria which are outlined in the State's Impaired

Waters Rule. It was reasonable for EPA to consider the State's own interpretation of its water quality standards with respect to this comment.

It was also reasonable for EPA to consider the State's assessment methodology in interpreting State WQS and determining whether waters are impaired due to violations of chronic numeric standards. In evaluating the State's listing decisions, EPA considered the methodology specified in the State's Impaired Waters Rule and used by ADEQ for applying chronic standards of other waters (AAC R18-11-605(D)(2)(b)). The State's assessment methodology requires a finding of impairment if the State determines more than one independent sampling event exceed either acute or chronic aquatic and wildlife standards in the assessment period. Therefore, the State's methodology specifically excludes application of A.A.C. R18-11-120(C) as a factor in determining water quality standards attainment for purposes of the Section 303(d) listing process.

Comments by Phelps Dodge and Responses

7. **Recent "clean" data collected by Phelps Dodge in Boulder Creek (two segments), Burro Creek and Butte Creek show that these segments are meeting applicable standards.**
   Response: Phelps Dodge (PD) provided additional monitoring data of aqueous mercury samples collected from over four consecutive days (November 29 to December 2, 2004) at sampling sites within three of four proposed listed segments in Boulder Creek watershed. EPA appreciates that PD provided these results and supporting documentation for this sampling event. EPA considered these recent "clean[1]" PD data as well as other data collected by PD (November 1999—April 2004). EPA also considered additional "clean" data collected by ADEQ from these water bodies during Sept. 2003 to Sept. 2004. EPA also considered sediment results collected by AGRA Earth & Environmental (2000). Before completing the assessment, EPA compiled these more recent data sets with the existing data sets previously included in the State's submittal. In summary, EPA evaluated all monitoring results and information pertaining to these four stream segments collected between November 1999 and December 2004. EPA disagrees that all of these water bodies now meet applicable standards. As described in the response to comment #12 below, EPA concludes that two reaches of Boulder Creek and one reach in Burro Creek do not meet applicable water quality standards and should be listed. EPA now concludes that there is insufficient evidence to support the proposed listing of Butte Creek, and this water will not be included on the final 2004 303(d) list.

8. **Data used to justify listing these four water bodies is not reliable and has other deficiencies. Also, reliance on sediment sampling data is misplaced because it has no**

[1]"Clean" data refers to using modern sampling protocols and sensitive analytical techniques outlined in EPA Method 1631E to measure mercury accurately in ambient water quality criteria levels. EPA recommends using Method 1631E (instead of 245.1) for NPDES effluent and ambient waters monitoring. Method 1631E was first promulgated by EPA in June 1999 and thereby incorporated into EPA's wastewater program (40 CFR part 136).

correlation to whether mercury levels are exceeding applicable standards in the water column of Boulder Creek, Burro Creek, or Butte Creek.

Response: EPA disagrees. The data supporting the addition of waters identified in EPA's final action satisfies levels of reliability appropriate to this listing proceeding. As described in the staff report supporting the proposed listing decisions, we explained our reasons for including the data in the assessments. We find it reasonable to use these data as they were collected pursuant to an approved quality assurance project plan.

EPA notes that agencies may use data of varying quality when making findings in proceedings such as the subject listing proceeding. See, e.g.: Environmental Defense Center, Inc. v. U.S. E.P.A., 344 F.3d 832, 869, 872 (9th Cir. 2003), cert. den'd, 124 S. Ct. 2811 (2004); Building Industry Assn. of Superior California. v. Norton, 247 F.3d 1241, 1246-47 (D.C.Cir. 2001), cert. den'd, 122 S.Ct. 913 (2002); Brower v. Daley, 93 F.Supp.2d 1071, 1082-89 (N.D.Cal. 2000), aff'd, 257 F.3d 1058 (9th Cir. 2001); American Iron and Steel Institute v. E.P.A., 115 F.3d 979, 1004-06 (D.C. Cir.1997); Chemical Manufacturers Assn. v. EPA, 919 F.2d 158, 167 (D.C.Cir.1990); American Mining Congress v. U.S. E.P.A., 907 F.2d 1179, 1187 (D.C. Cir.1990); Earth Island Institute v. Evans, 256 F.Supp.2d 1064, 1073-74 (N.D. Cal. 2003); and Center for Biological Diversity v. Rumsfeld, 198 F.Supp.2d 1139, 1156 (D.Ariz. 2002).

Sediment sampling data can provide relevant evidence and should be given some weight when determining whether a water column concentration criterion is being exceeded. See, Kim D, et al, (2004) "Generally, exchange across the sediment–water interface serves as an important process in regulating water column concentration of metals in natural waters." See also, Carroll RWH, et al, (2000) "It is found that Hg in initial bed concentrations impact water column concentrations of Hg and MeHg, particularly at low flows." …. "Mercury also enters the water column by diffusion from the channel bed sediments [cites omitted]. This source term is thought to be particularly important for methyl–mercury movement into the water column when the discharge is low."

9. EPA's determination to add these water bodies to AZ 2004 list is contrary to EPA approved water quality standards applicable to such segments:

a. Arizona water quality standard R18-11-120(C) should be used to assess compliance with chronic aquatic and wildlife water quality standards:

Response: Consistent with ADEQ's interpretation of its water quality standards, EPA concludes that 120(C) does not apply for purposes of developing the State's 303(d) list. EPA's assessment methodology for aquatic and wildlife standards relied on evaluation of monitoring results compared to the State's numeric standards identified in A.A.C.R18-11, Appx. A, Table 2. See response to comment 6 above.

b. Arizona's IWIR authorizes ADEQ to assess surface waters as impaired for chronic standards based on statistically derived criteria:

Response: This comment does not appear to address EPA's rationale for including waters on the 303(d) list due to violations of chronic standards.

The State is authorized to apply assessment criteria that are consistent with the applicable water quality standards. The IWIR describes in AAC R18-11-605(D)(2)(b) methods for assessing against chronic aquatic and wildlife water standards. This rule requires ADEQ to include a stream on the 303(d) list "if there is more than one exceedence of an ...aquatic and wildlife chronic standard… as specified in 18 AAC, article 1, Appx. A, Table 2." EPA concludes the IWIR rule itself does not contain language that obligates ADEQ to assess chronic standards using some statistical derivation. As discussed in the response to comment #6, EPA considers it reasonable to consider, the State's interpretation of its own standards as a factor in EPA's analysis of State listing decisions. Also, there are no federal requirements that states use statistically derived criteria. See also responses to comments #6 and 11.

10. EPA's action of allowing grab samples to determine compliance with, or an exceedence of, the chronic aquatic and wildlife criteria, is in effect a change in the EPA-approved state water quality standards applicable to Burro Creek, Boulder Creek and Butte Creek. This action violates 33 U.S.C. 1313(c)(3) and (4).

Response: EPA disagrees. EPA is not barred from considering grab sample results when determining whether chronic aquatic and wildlife criteria are being implemented. The result of a grab sample, properly obtained, provides information regarding water quality at the time of sampling. In addition, an agency may use sample results to draw reasonable inferences regarding the water's quality at times other than the instant that the sample was taken. The ability to draw such inferences is one reason why a state can issue a standards compliance certification (see CWA, sec. 401(a)) or meet its duty to issue NPDES permits only when standards compliance is assured (CWA, sec. 402(b)), without requiring that the discharger monitor for all pollutants continuously.

11. EPA's application of ADEQ methodology for assessing chronic standards is contrary to EPA national regulations and guidance. More specifically, the commenter cited EPA documents describing the chronic criteria and they assert this guidance requires: a) averaging four day samples and b) allowable exceedence frequency of one in three years.

Response: EPA decisions were not based on direct application of ADEQ's assessment methodology. EPA's decisions were based on our review of available data and information in comparison with applicable state water quality standards and EPA regulations and assessment guidance. As part of this analysis, EPA considered ADEQ's interpretations of state water quality standards, including its assessment methodology. It is reasonable for EPA to consider State interpretations of its own water quality standards as part of EPA's review of the 303(d) listing decisions. See response to comment #6 above.

EPA relied on the following national regulations and guidance documents (and citations therein) to perform an independent assessment of the water bodies in Boulder Creek and Brewery Gulch areas:

1. The 1991 guidance for water quality–based toxics control describes the development of the aquatic life use criteria and elaborates on the allowable frequency interval for acute and chronic exceedences. "These data indicate that as a general rule, the purpose of the average frequency of allowed excursions will be achieved if the frequency is set at once every 3 years on the average." (p. D-5)
2. The 1997 guidance for 305(b) reporting and 303(d) listing states that more than one exceedence of either acute or chronic aquatic life criteria is considered partial support of the designated use and is considered impairment for listing purposes.
3. The 2002 CALM guidance (Table 4-3) recommends the following assessment criterion: "For any pollutant, no more than one excursion above chronic criteria (or applicable state/tribal criterion) within a 3-year period based on grab or composite samples."
4. EPA regulations require States to evaluate "all existing and readily available water quality related data and information" in the listing process (40 CFR 130.7(b)).

None of the documents cited by the commenter recommend against using grab samples during timeframes where 96-hour composite data are unavailable. Regarding the allowable frequency of exceedence, EPA applies the general rule of thumb recommended in EPA's 1991 guidance cited above (i.e., toxic pollutant standards that address aquatic life protection should be exceeded no more than once in three years). EPA considers it appropriate to assign more weight to assessment of the three most recent years of monitoring data. That is, EPA determines the designated use aquatic life is supported if the three most recent consecutive years of monitoring data show less than two acute or chronic exceedences and no other evidence of impairment exists; e.g., elevated levels of sediment and tissue concentrations for the same pollutant.

To support our final listing determinations, EPA carefully reviewed all available data and information (1999—2004), including recent "clean" data provided by the commenter, for three of four stream segments in the Boulder Creek area (for Hg). EPA also reviewed data and information for one stream segment the Brewery Gulch (for Cu). For water samples, the number and magnitude of exceedences were compared to ADEQ's numeric standards specific to each applicable beneficial uses (e.g., fish consumption and aquatic and wildlife uses). For assessments in comparison to aquatic and wildlife acute and chronic standards, the dates of the observed exceedences were carefully reviewed to determine if more than one exceedence had occurred in the three most recent year timeframe, defined as December 2001 to December 2004. For sediment samples, the results were compared to sediment quality guidelines (Hg TEL = 0.174 mg/kg dry weight; Hg PEL = 0.486 mg/kg dry weight), as well as the magnitude of the results above the guidelines. A weight of evidence approach was used to reach our final conclusions. In this context this means that EPA considered all available lines of evidence to determine whether the evidence as a whole indicates water quality standards were violated.

12. There is not sufficient data from Boulder Creek, Burro Creek or Butte Creek to verify even one exceedence of the chronic mercury water quality standard applicable to these waters.

Response: EPA disagrees. Here are the assessment conclusions for four stream segments in Boulder Creek area (for Hg) and one in Brewery Gulch (for Cu).

Boulder Creek—unnamed trib to Wilder Creek: Monitoring data shows 8 sample exceedences of the State chronic dissolved mercury water standard over the past five years, with 5 event exceedences occurring in the most recent 3-year period. EPA concluded this segment is impaired and it will be added to Arizona's 2004 303(d) list.

Boulder Creek—Wilder Creek to Butte Creek: Monitoring data show 5 sample exceedences of the State chronic dissolved mercury water standard over the past five years, with 3 event exceedences occurring in the most recent 3-year period. One exceedence of the total mercury water standard for fish consumption occurred. Six of 14 sediment results were above the mercury threshold effects level (TEL); three were above the probable effects level (PEL). As noted by the commenter, all of these water and sediment exceedences were observed at sampling sites in Boulder Creek between Wilder Creek and Butte Creek, in the vicinity of Hillside mine. Monitoring data from sampling sites in Boulder Creek between Butte Creek and Copper Creek did not indicate any water or sediment exceedences. EPA concluded Boulder Creek between Wilder and Butte Creek is impaired and should be included on Arizona's 2004 303(d) list. EPA concluded that the segment from Butte Creek and Copper Creek should not be included on the list.

Burro Creek—Boulder Creek to Black Canyon: Monitoring data show 5 sample exceedences of the State's chronic dissolved mercury water standard over the past five years, with 4 sample exceedences occurring in the most recent 3-year period. One exceedence of the total mercury water standard for fish consumption occurred. EPA concluded this segment is impaired and it will be added to Arizona's 2004 303(d) list.

Butte Creek—headwaters to Boulder Creek: Monitoring data show 2 exceedences that occurred in March 2001 and March 2002. Recent water results show non-detects in 2003 and 2004, thus only one exceedence occurred in the most recent 3-year period. One sediment result is below the TEL. There is no additional evidence of elevated mercury concentrations in the sediments or tissues. EPA concluded there is insufficient evidence to support listing this segment, so it will not be included on Arizona's final 2004 Section 303(d) list.

Brewery Gulch: Monitoring data show 7 sample exceedences of the State's acute dissolved copper water standard over the past five years, with 3 sample exceedences occurring in the most recent 3-year period. EPA concluded this segment is impaired and it will be added to Arizona's 2004 303(d) list.

EPA is setting a low priority ranking for the mercury listings in Boulder Creek (unnamed tributary to Wilder Creek), Boulder Creek (Wilder Creek to Butte Creek), and Burro Creek to reflect our understanding of the State's current monitoring and TMDL

development priorities. There is substantial interest in collecting additional monitoring data for these segments prior to initiating TMDL development—an approach EPA supports in these cases.

Comments by Sierra Club and Responses

13. **Arizona's Impaired Waters Rule (ARS49-231 thru 49-238) does not comply with Federal Clean Water Act because it limits consideration of all readily available data and results in massive de-listing from 303(d) list.**
    Response: EPA agrees that some aspects of the IWIR do not comply with federal listing requirements and guidance.

14. **Sierra Club supports EPA's decision to add 19 water bodies and 8 additional pollutants to Arizona's list.**
    Response: Thank you for the comment.

15. **Sierra Club encourage EPA to consider the status of native fish species when determining whether water bodies are listed as impaired and prioritized for TMDL development. One factor contributing to decline of spikedace is excessive sedimentation, which can be addressed via TMDLs.**
    Response: EPA considered information in the record concerning the status of native species in its review of Arizona's listing decisions. We note that ADEQ has included this information as part of their scheme for prioritizing TMDL development. See, ADEQ 2004 IR submittal section V, pg 34.

16. **Sierra Club supports EPA's decision to add lakes with fish advisories for mercury and streams with elevated mercury concentrations in water and sediments.**
    Response: Thank you for the comment.

Comments by City of Phoenix and Responses

17. **Fish consumption advisories in Salt & Gila Rivers are out of date and listed segments are inaccurate:**

    Response: EPA did not invite comment on water bodies that ADEQ included on their list and that EPA approved on November 16, 2004. These comments are being forwarded to ADEQ for consideration in the 2006 listing cycle, the commenter is encouraged to work with the State to ensure the concerns are addressed at that time.

18. **Request for data supporting fish consumption advisories in Salt River:**
    Response: In a separate reply, EPA has responded to this request for data and information related to these fish consumption advisories per requirements outlined under the Freedom of Information Act (FOIA).

References

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EPA 2002 Consolidated Assessment and Listing Methodology, U.S. Environmental Protection Agency, Office of Water, Washington, DC.

EPA Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectometry, U.S. Environmental Protection Agency, Office of Water, Washington, DC. http://www.epa.gov/waterscience/methods/1631.html

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Kim D, et al. 2004 A model approach for evaluating effects of remedial actions on mercury speciation and transport in a lake system, *Sci. of the Total Env.*, 327(1-3):1-15